# Opportunity Knocks

## AFIT's graduate education program boosts Air Force careers

An interview with Col George K. Haritos, Commandant, Air Force Institute of Technology, Wright-Patterson Air Force Base, OH.

***The CE:*** What are the advantages to an Air Force officer of attending the Air Force Institute of Technology for their graduate education versus a civilian institution?

**Col Haritos:** The fundamental difference that makes AFIT unique is we have one customer, the U.S. Air Force. When an Air Force officer attends a quality civilian university, they can expect to receive a very good education. However, since the university has no knowledge of who will hire each graduate, it can only provide Air Force students with broad, "generic" if you will, preparation. That's where AFIT provides a distinct advantage.

Every Air Force officer who attends AFIT knows what their assignment will be upon graduation. That allows us to customize the education in each major, and many times for each student, to prepare them for the needs of the Air Force organization where they will be working. I often say that although there is no "Air Force" differential equations, physics or electrical engineering, there are specific Air Force applications for each. Our professors bring these connections to the classroom — how they are applied to enhance the Air Force mission.

Col George K. Haritos

We also require our master's students to complete a thesis. This is becoming less prevalent at many civilian universities. The master's thesis is important because in most cases it represents the first opportunity for the student to be a producer, rather than a consumer, of information. Aside from the value of the research to the Air Force sponsor, attacking and completing a major individual research project provides excellent experience to our young people and represents a significant foundation for their development for leadership positions.

Nearly 90 percent of thesis topics at AFIT are sponsored by the Air Force or the Department of Defense. At a civilian university, when a student looks for an advisor to do a thesis, the topic has been predetermined. Captain Smith cannot say, "I would like to work on facilities engineering development, the way we do it in the Air Force." If the professor has no funding support in that area, he's not going to help Captain Smith do that. Some professors will pick up an occasional student without money, but usually graduate students work with professors who have already won research grants and need help executing them.

Another advantage we have over civilian institutions is that half our faculty members are military officers who stay here an average of only four years. This means we have a constant influx from the field, bringing the latest issues to the classroom. There is no way our program can become stale, because we know exactly what the Air Force needs.

Finally, you don't operate in isolation in the Air Force. You always work with those who are in career fields that overlap yours. This is the only place in graduate education where you interface with other Air Force officers who are in operations research, information resources management, electrical engineering, logistics management, or even meteorology, for instance. All of these areas have interplay with civil engineering.

***The CE:*** How is AFIT changing to meet the modernization challenges of the Air Force mission?

**Col Haritos:** Let me focus here in the areas where your readers would be most interested.

The Air Force's desire to modernize weapon systems is forcing civil engineers to examine more efficient ways of maintaining and operating base infrastructure. As we contract out various functions, it is imperative that young CE officers understand how to manage projects and programs. Project management is receiving increased attention at AFIT and is being applied to a wide variety of topics. We're also developing a research stream to address total ownership costs of base facilities, determining the right amount of infrastructure maintenance and incorporating the plant replacement value concept.

In the environmental arena, AFIT students actively perform research in innovative environmental remediation methods to help the Air Force clean up contaminated sites in a more cost-efficient way. We will eventually reach a point where environmental issues are more commonly understood and contaminated areas cleaned up. At AFIT, we will begin to focus more on issues such as sustainable development (an ecosystem approach to development), efficient maintenance, and CE

contingency requirements, including new responsibilities, training, equipment and structure.

We also have a program on space facilities. It is a structures option under the astronautics program. Students receive a degree in astronautical engineering, with a specialization in construction and maintenance of space facilities. We have a simulation satellite that our professors and students constructed here. It's operated to simulate all degrees of freedom, motion, space, and how you dampen motion so you don't overshoot when operating a space structure or satellite and keep it oriented in a certain direction. A follow-on assignment to that program might be with Air Force Space Command or a joint assignment.

For many years, the Air Force has been concerned with life cycle costs of aircraft. How about life cycle costs of facilities? For the last few years we have been addressing the issue of using environmentally friendly materials to make composites for aircraft, so that when they are retired we don't have problems caused by hazardous chemicals present in the manufacturing materials. How about eco-friendly building materials and finding ways to help manage the development of facilities? Here at AFIT we have electrical engineers, computer software developers, structures engineers, aeronautical engineers, and civil engineers, all working toward improving the ability of the Air Force to carry out its mission. There's a lot of synergy.

We have a great relationship with The Air Force Civil Engineer. I think the civil engineer career field is the best organized in the Air Force when it comes to meeting its educational requirements. We are working very hard to develop similar relationships with the other career fields we serve.

***The CE:*** Tell us about the recent accreditation AFIT received.

**Col Haritos:** In September 2000, we were visited by a team of educators appointed by the Higher Learning Commission of the North Central Association of Colleges and Schools [NCA]. We were first accredited by the NCA in 1961, and have received the maximum possible 10-year re-accreditations since then. Accreditation is necessary for AFIT's continued ability to confer degrees. The NCA accreditation process considers all "health" aspects of the Institute: the quality of our academic programs, our faculty's and staff's credentials, our admission criteria, graduation requirements, our management structure and its effectiveness, facilities, library, institutional (Air Force, in this case) commitment, our planning and resources (including budget execution), morale, student critiques, evaluation of our graduates by their supervisors, and other like factors.

At the exit briefing, the team stated that they were very well impressed with all three resident AFIT schools: the Graduate School of Engineering and Management, the Civil Engineer and Services School, and the School of Systems and Logistics. They were very complimentary of the faculty and staff, the new science and engineering laboratories building, and the planned campus expansion.

Focusing on the graduate school, they said they were envious of AFIT's excellent students, faculty and staff. They remarked on the graduate school's focused military-interest programs, saying, "they are a credit to the nation." Of course, after these remarks, we were not surprised to again receive the full 10-year re-accreditation.

***The CE:*** What else is new at AFIT that you would like our readers to know about?

**Col Haritos:** This January we cut the ribbon on a new $8.2 million laboratory building. It's about 30,000 square feet, including 5,000 square feet of clean rooms for microelectronic mechanical systems and fabrication of electronic components, with sophisticated air cleaners, air handlers, filters, etc. It's an outstanding facility. I remember when I was teaching here from 1982 to 1985, we had most of our students doing their experiments in the laboratories in Area B of Wright-Patterson. Now almost all our students conduct their experiments and thesis research in our own facilities. One of the suites is an environmental suite, with the latest environmental facilities for civil engineering students to use.

Most people have no idea that AFIT is more than 80 years old. The first civil engineering classes began in 1948, so AFIT has been providing education to civil engineers for more than 50 years.

We have also recently gained approval for a major campus upgrade plan. Modernizing the Graduate School of Engineering and Management building is the first priority because of its age (early '60s era). The number two priority is an addition to the library. We have a great library, but need more space because we recently combined our library with the Air Force Research Laboratory's technical library, accommodating the combined people and holdings in our facility. Third priority is an activities center, what I call a student union, with a gym, student lounge, food court and the like. In the out MILCON years, we have planned for a professional development center and a VOQ [visiting officers quarters] annex.

AFIT offers great opportunities for our Air Force civil engineers, both at the degree-granting, graduate school level, and in professional continuing education. I hope your readers will continually check out our offerings, both in-residence and through the distance-learning program, to see what a difference we can make in their Air Force careers.